

REMARKS

By the present amendment, claim 27 has been amended to be written in independent form, and a new claim 29 corresponding to claim 10 rewritten in independent form has been added.

Claims 1-11, 13-20 and 22-29 are pending in the present application. Claims 1-10, 13-20, 22-25 and 27-29 are directed to a plane light source unit and claims 11 and 26 are directed to a liquid-crystal display device.

In the Office Action, claims 1-4 and 9-11 are rejected under 35 U.S.C. 103(a) as obvious over US 5835661 (Tai), and claims 5 and 7-8 are rejected under 35 U.S.C. 103(a) as obvious over Tai in view of US 5727107 (Umemoto).

In response to the argument made in response to the previous Office Action that Tai is not concerned with light rays having a large incidence angle from the normal at the interface between the linear light pipe and the planar light pipe, it is alleged in this Office Action that the beam collector of Tai “does not act as a collimator” in the embodiment described at col. 5, lines 32-34 of Tai (see para. 11 on page 4 of the Office Action).

It is also alleged in this Office Action that the discussion of the refractive index of the adhesive between the linear and planar light pipes at col. 14 of Tai “shows the desired index difference at the emission surface of the linear light pipe, suggesting the obvious change discussed above” (see para. 12 on page 4 of the Office Action).

The rejections and the interpretation of Tai set forth in the Office Action are respectfully traversed. It is submitted that the passage of Tai that discusses an embodiment where the beam collector 28 does not collimate light (see col. 5 of Tai) has been misunderstood.

Specifically, this passage of Tai states:

Divergent light (indicated, in FIG. 1 and the other figures below, by arrows emanating from the light 10 source 2) is emitted by the light source 2. The beam collector 28 directs the divergent light from the light source 2 through an entry surface 16 of the beam expanding light pipe 14. As explained in more detail below with respect to FIG. 2, the beam collector 28 is shaped so that the beam collector 28 also collimates the divergent light in a predetermined manner. However, this need not necessarily be the case, since, for some applications, it may not be necessary for the beam collector 28 to collimate the light. (Tai at col. 5, lines 24-34.)

Thus, the embodiments of Tai with a beam collector that does not collimate light, as envisioned by Tai in this paragraph, are those where either (i) light is already collimated by the light source, or (ii) light does not need to be collimated. In particular, in the case one would be concerned about uncollimated light, Tai teaches in the same paragraph that the beam collector should be shaped so as to collimate light. In addition, Tai indicates in the following paragraph that “[t]he microprisms 44 [of the linear light pipe] also collimate the light” (Tai at col. 5, lines 46-47). As a result, Tai does not provide a motivation to even consider collimating light by adapting the refractive indices of the light pipes, because Tai teaches that light is collimated by the beam collector and by the microprisms.

Further, contrary to the interpretation stated in the Office Action, the discussion at col. 14 of Tai of an adhesive having a low refractive index does NOT suggest using a higher refractive index for the material of the planar light pipe, because Tai clearly envisions the same material for both light pipes. For example, Tai states in that paragraph: “For instance, the adhesive 71 can be made of one type of acrylic-based material having the appropriate index of refraction, and the light pipes 14' and 70' can be made of another material having a higher index of refraction” (Tai at col. 14, lines 12-16).

As a result, first, Tai is completely silent as to collimating light by providing linear and planar light pipes having different refractive indices, and second, even if, arguendo, a person of the art attempted to further collimate light by modifying refractive indices, that person would possibly modify the refractive index of an adhesive between the linear and planar light pipes, as disclosed by Tai at col. 14, but would find no suggestion or motivation to provide light pipes having different refractive indices.

In summary, Tai fails to teach or suggest linear and planar light pipes having different refractive indices, let alone a linear light pipe having a refractive index higher than that of the plane light pipe, as recited in present claim 1. Therefore, claim 1 and the claims dependent thereon are not obvious over Tai taken alone or in combination with Umemoto.

In view of the above, it is submitted that the rejections should be withdrawn.

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

In the event there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to our Deposit Account No. 01-2340.

Respectfully submitted,

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